

REMARKS

Applicants have carefully considered the August 16, 2007 Office Action, and the comments that follow are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance. Claims 31-51 are pending in this application. Claims 36-40 have been withdrawn from consideration pursuant to the provisions of 37 C.F.R. § 1.142(b).

In response to the Office Action dated August 16, 2007, no claims have been amended. Entry of the present response is respectfully solicited. It is believed that this response places this case in condition for allowance. Hence, prompt favorable reconsideration of this case is solicited.

Claims 31-35 and 41-51, were rejected under 35 U.S.C. § 102(e) as being anticipated over Emigh et al. (U.S. Pat. No. 5,823,521, hereinafter "Emigh"). Applicants respectfully traverse.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the identical disclosure in a single reference of each element of the claimed subject matter, such that the identically claimed subject matter is placed into the possession of one having ordinary skill in the art. Moreover, in imposing the rejection under 35 U.S.C. § 102, the Examiner is required to specifically identify wherein an applied reference is perceived to identically disclose each feature of the claimed subject matter. That burden has not been discharged. Moreover, there are significant differences between the claimed method of independent claims 31 and 45 and the computer controlled apparatus for inserting mail into envelopes disclosed by Emigh that would preclude the factual determination that Emigh identically describes the claimed subject matter within the meaning of 35 U.S.C. § 102.

In the Office action, the Examiner asserted that Emigh teaches relevant subject matter, with respect to independent claims 31 and 45, at Figs. 5A, 8, 9, 11 and 12 by way of the control system CPU controlling and calculating difference and new speed of the inserter based on the speed table, noting that Emigh discloses a plurality of programmed tables to calculate and use different speeds. It is noted that Emigh is discussed in the Background section of the present application. For the reasons advocated below, Applicants submit that the present claimed subject matter is patentably distinct over the '521 patent to Emigh.

The subject matter disclosed in this application is generally directed to a method for controlling an inserting apparatus over a range of master cycle speeds. As discussed in the Background Art section of the specification, modern mail insertion machines such as an inserting apparatus often include both variable-speed devices and actuator-driven devices. An example of a variable-speed device is a rotary device such as a conveyor or assembly that operates by a rotating drive member such as a shaft. An example of an actuator-driven device is a solenoid-driven vacuum cup or gripper that, due to its reciprocative movement and the means by which it is actuated, extends and retracts at substantially unchanging speeds or over substantially constant time periods. The respective operations of the variable speed devices and the actuator-driven devices must be coordinated or synchronized in order to successfully accomplish the intended objective, such as mail insertions, for any given overall machine cycle speed. If the machine cycle speed is changed, such as to accommodate a change in the size of the mail pieces to be processed, the respective speeds or timing of the variable speed devices and the actuator-driven devices often must also be changed to correlate with the new machine cycle speed, and synchronization among the various variable speed devices and actuator-driven devices must be maintained.

Variable speed devices can quite easily accommodate a change in machine cycle speed because their operation can be controlled by a rotating shaft and/or variable speed motors. However, the rate of functional movement of actuator-driven devices, such as the extension or retraction of an actuator arm, cannot in most cases be changed to any appreciable degree in response to a change in machine speed. Therefore, in order to maintain synchronization of actuator-driven devices in response to a change in machine speed, the timing of actuator-driven devices, or their angular position relative to the overall machine cycle (measured, for example, in degree increments of a 360-degree cycle), must be reset to a different value.

As Applicants discussed on pages 5-7 of the present application, one approach to maintaining proper control and synchronization in a variable-speed inserter machine is disclosed in **Emigh (U.S. Pat. No. 5,823,521)**. Other patents to Emigh are also discussed (i.e. 5,941,516; 5,949,687; 5,954,323; and 5,975,514). In the main embodiment disclosed in these patents, a Phillipsburg-type mail inserter machine has twelve stations or subassemblies, all of which operate (i.e., are activated and deactivated) in timed relation over the 360-degree timing cycle of the inserter machine. The respective operations of these stations is put under computer-driven, adaptive control, in order to compensate for the electromechanical time lags exhibited by certain components such as pneumatic cylinders that require extension and retraction. As a result, the ON-OFF control signal used to initiate and terminate the respective electromechanical functions of the actuator-type components can be adjusted in response a change in machine speed, thereby maintaining correct timing of the various components.

As further described in the Background section of the present application, in the Emigh et al. patents, including the '521 patent relied upon by the Examiner in the present rejection, the adaptive control is implemented by programming "look-up" speed tables into the control

software executed by the computer. These speed tables include the correct start angles (i.e., the timing for an ON control signal) and stop angles (i.e., the timing for an OFF control signal) for each station requiring such control. A "low" speed table, derived empirically, is provided for the machine operating within the range of 0-2000 cycles per hour. Additionally, the respective time lags (or activation times) for the various actuator-type components are empirically measured, and the resulting value stored in an "operational delay" look-up table. The values from the operational delay tables are used together with the cycle speed of the machine to calculate adaptive adjustment factors, which in turn are used in further calculations to determine new start and stop angles for a different cycle speed. These new values are entered into a new speed table. This process is carried out until five successive speed tables are generated, each corresponding to a cycle speed range of 2,000 cycles per hour in width, such that the five speed tables cover the operation of the machine over a total range of 0-10,000 cycles per hour. The mail inserter machine is ready for operation only after all five predetermined speed tables have been stored in memory.

Moreover, as described in the Background section of the present application, during operation of the mail inserter machine disclosed in the Emigh et al. patents, including the '521 patent, the computer samples the output of a tachometer such as an absolute optical encoder interfaced with the main drive shaft of the machine. This sampling is rigidly performed at constant intervals as dictated by a clock speed, regardless of what the machine is actually doing. In the specific embodiment disclosed, the sampling is taken without exception every 100 milliseconds. Based on the cycle speed measured by the encoder, the computer selects the appropriate speed table and uses the values from the selected speed table to determine the proper control signals to be issued to the actuator-type components. As an alternative, the computer can

use the low speed table and the operational delay table to update a new speed table every 100 milliseconds. It is disclosed, however, that this latter method has the disadvantage of possibly slowing down the computer due to the CPU having to make repetitive calculations every 100 milliseconds.

Applicants respectfully submit that the '521 patent to Emigh, fails to teach or suggest a method for more precisely controlling and adjusting actuators in response to variable machine speeds on a substantially continuous basis, particularly in the operating environment of continuous motion inserting machines, in order to more easily and precisely maintain synchronization after a speed adjustment occurs, and further to ensure more consistent performance during ramp-up and shut-down portions of the machine cycle. See page 7 of the present specification.

The present disclosed subject matter maintains synchronization by making adjustments to the timing of actuator-driven devices in response to changing cycle speed in a unique, real-time manner. A motion controller or similar means is utilized to execute a control process by which a new activation and/or deactivation time for an actuator-driven device can be calculated in response to a change in machine cycle speed. Uniquely, the frequency at which the motion controller executes its control process depends on the frequency of the machine cycle. That is, if for example the motion controller is programmed to execute its control sequence once every machine cycle, then the faster the machine is turning, the greater the number of times the motion controller performs its calculations.

The ability to make on-the-fly adjustments for activation of an actuator device, the concept of which is foreign to Emigh, is reflected in the language of independent claims 31 and 45. Claims 31 and 45 require, in pertinent part, a method for controlling an inserting apparatus

over a range of master cycle speeds, including the steps of: (i) determining when a new master cycle has begun; (ii) performing a first calculation to determine a first cyclical position of the new master cycle at which an actuated device should begin to be activated during every master cycle of operation of the inserting apparatus; and (iii) at least once during every master cycle of operation, the actuated device is caused to be activated when the new master cycle reaches or exceeds the calculated first cyclical position.

Applicants respectfully submit that Emigh fails to provide any disclosure as to determining when a new master cycle begins and calculating a position at which an actuator device should be activated during the new master cycle of an inserting apparatus (as required in claims 31 and 45), much less that the calculation is preformed in response to changing the master cycle speed (as required in claim 31). Thus, the Examiner did not discharge the initial burden of indicating where such a teaching or suggestion appears in the applied reference.

It is respectfully submitted that the ability to make on-the-fly adjustments for activation of an actuator device is completely foreign to Emigh and the Examiner has failed to specifically identify where the reference teaches every limitation of independent claims 31 and 45. Thus, the above argued differences between the claimed method and Emigh's apparatus undermines the factual determination that Emigh discloses the method identically corresponding to that recited in independent claims 31 and 45. *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 230 U.S.P.Q. 86 (Fed. Cir. 1986). Applicants, therefore, submit that the imposed rejection under 35 U.S.C. § 102 for lack of novelty as evidenced by Emigh is not factually viable and, hence, solicit withdrawal thereof.

It is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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